

**Remarks/Arguments:**

**Claim Status**

Claims 22-45 are currently pending. Claims 26-29, 31, 32 and 34 are withdrawn from consideration. Claims 39-41 and 43 stand objected as being dependent upon a rejected base claim, but would be allowable if rewritten into independent form.

Support for the amendments to claim 22 may be found in the clean copy of the substitute specification at, *inter alia*, page 15, lines 5-24 and in the paragraph beginning at page 18, line 18. Claim 44 is new, and support for claim 44 may be found, *inter alia*, in the clean copy of the substitute specification in the paragraph beginning at page 17, line 8. Claim 45 is new, and support for claim 45 may be found, *inter alia*, in the clean copy of the substitute specification in the paragraph beginning at page 18, line 16.

**Rejections Under 35 U.S.C. §102 and §103**

Claims 22-25, 36-38 and 42 stand rejected under 35 U.S.C. §102 as anticipated by U.S. Patent No. 5,813,230 to Hartl. Claims 30, 33 and 35 stand rejected under 35 U.S.C. §103 as unpatentable over Hartl. Applicants respectfully request reconsideration of the rejection of these claims for the reasons set forth hereinafter.

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." M.P.E.P. §2131 *citing Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "To establish a prima facie case of obviousness, ... the prior art reference (or references when combined) must teach or suggest all the claim limitations." M.P.E.P. §2143. Claim 22 recites features that are neither disclosed nor suggested by the cited references.

More particularly, independent claim 22 recites "Brake-by-wire actuator for actuating the brake system of a motor vehicle, comprising a simulator which can be acted upon by a brake pedal, with an output signal of an actuation sensor being sent to an electronic control unit which controls a pressure source in response to the signal of the actuation sensor, and with an output of the pressure source that is connected to a distributor device for the brake force and actuates individual wheel brakes of the vehicle, also comprising means for enabling actuation of the brakes by muscular power within a fallback mode, wherein a first actuation component, defined by the brake pedal or a component articulated at the brake pedal, and a second

actuation component that is connected downstream in the flux of force are configured relative to one another such that the first actuation component remains mechanically uncoupled from the second actuation component during a by-wire mode with a lost travel remaining between the first and second actuation components during the by-wire mode."

As described in the clean copy of the substitute specification at page 3, line 15 to page 4, line 7, "a lost travel **a** is provided between an actuation component such as a brake pedal or a component articulated at a brake pedal and a second actuation component that is connected downstream in the flux of force, in order to uncouple the brake pedal mechanically from the reactions of force of the motor vehicle brake system in the by-wire mode. Consequently, the actuation component has a divided design, and the two parts are spaced a distance 'a' from one another so that the flux of force is interrupted. The combination of features indicated in the main claim provides the precondition for a mechanical uncoupling of the brake pedal from subsequent actuation components in the by-wire mode with a simultaneously direct through grip possibility in the fallback mode (non-by-wire mode). The invention permits an unlimited functionality and a surprisingly simple brake-by-wire actuator. **Merely the lost travel 'a' must be overcome until the hydraulic/mechanical fallback mode is reached before braking pressure builds up in the wheel brakes.** More specifically, it must be ensured in the by-wire mode that a sufficient distance 'a' is permanently given for mechanically uncoupling the brake pedal."

The Office Action cites to the first rod 1 of Hartl as equivalent to the first actuation component and the end 33 of second rod 3 of Hartl as equivalent to the second actuation component. Applicants respectfully submit that, contrary to the claimed invention, the first rod 1 and the second rod 3 (including its end 33) of Hartl remain mechanically coupled at all times, including during the by-wire mode (referred to as the normal case in Hartl). Hartl explains in the paragraph beginning at column 3, line 66, that:

According to the embodiment illustrated in FIG. 1, the part of the brake linkage 1, 3 is guided in a housing 8 in which the relative movement between the two rods 1, 3 takes place. The housing 8 is connected with the housing of the master brake cylinder 9. The rod 1 of the brake linkage mechanically connected with the brake pedal projects into the housing 8 by means of its hollow-cylindrical end 120. In the hollow-cylindrical end 120, an end 123 of the second rod 3 is guided; the other end of the second rod is connected with the plunger piston 7 of the master brake cylinder 9. The play of the relative movement of the two rods with respect to one another is determined by the extent by which the end 123 of the second rod 3 can dip into the hollow-cylindrical end 120 of the rod 1. A

supporting ring 121 is molded to the hollow-cylindrical end 120 of the first rod 1. A supporting ring 122 is also molded to the second rod 3 on the side facing the first rod 1 and being situated outside the play of movement. **A restoring spring 2 is arranged between the two supporting rings.**

(emphasis added). As explained in this passage and illustrated in Figure 1 of Hartl, the spring 2 extends between the two components 1 and 3 and thereby mechanically couples the two components 1 and 3 at all times, including during the by-wire mode. As explained in Hartl at column 4, lines 31-38 and column 5, lines 43-52, in a by-wire mode (referred to as the 'normal case' in Hartl), actuation of Hartl's brake pedal displaces rod 1, which, in turn, displaces end 33 of rod 3 which, in turn, displaces pistons 7 and 11 until the breather hole 18 is closed by piston 7. The rods 1 and 3 of Hartl remain mechanically coupled at all times via spring 2. Hartl fails to disclose or suggest each limitation recited in claim 22.

For at least the foregoing reasons, it is respectfully submitted that claim 22 is in a condition for allowance. Claims 23-25, 30, 33 and 35-44 each depend from claim 22 and are allowable for at least the reasons set forth above. Withdrawn claims 26-29, 31, 32 and 34 each depend from allowable generic claim 22 and should each be reinstated and allowed.

In addition to its allowability as dependent on claim 22, claim 44 further recites "wherein the simulator which can be acted upon by a brake pedal is arranged at the brake pedal." Hartl teaches the spring 2, which is within the internal linkage distant from the brake pedal, as providing the restoring force (see column 4, lines 37-38). Hartl does not teach or suggest the simulator being arranged at the brake pedal. For this further reason, applicants respectfully submit that claim 44 is in condition for allowance.

Independent claim 45 is similar to claim 22 and recites "the first actuation component remains mechanically uncoupled from the second actuation component during a by-wire mode with a lost travel remaining between the first and second actuation components during the by-wire mode." As explained above, contrary to the claimed invention, the rods 1 and 3 of Hartl remain mechanically coupled at all times via spring 2. Claim 45 further recites a brake-by-wire system that controls the brake booster and the master brake cylinder to control braking force. In contrast, Hartl's brake-by-wire system bypasses the master brake cylinder (by preventing brake fluid from escaping the master brake cylinder) and controls a separate power brake device in the wheel brake cylinders to generate wheel brake pressure (see Column 3, lines 13-25). In other words, the instant brake-by-wire system utilizes a brake booster and a master brake cylinder to apply a braking force, whereas Hartl's brake-by-wire system utilizes a power

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brake device that is within the wheel brake cylinders to apply a braking force. It is respectfully submitted that independent claim 45 is in condition for allowance.

Early reconsideration and allowance of each of the pending claims are respectfully requested. If the Examiner believes an interview will advance the prosecution of this matter, the Examiner is invited to contact the undersigned to arrange the same.

Respectfully submitted,



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